IN THE CLAIMS:

Listing of Claims

This listing of claims replaces all prior versions, and listings, of claims in the application. Currently amended claims are shown with additions underlined and deletions in ~~strikethrough text~~. Please cancel claims 2, 4, 13-16, 20, 23, 28, 36-38 and 40 without prejudice to or disclaimer of the subject matter therein. Please add new claims 41-48. No new matter is added by this amendment.

1. (Currently amended) A method comprising:

creating a dataset that includes a plurality of images associated with a cyclical movement of a body part, at least one ~~of the images~~image from the plurality of images ~~(a)~~ depicting a non-tissue internal reference marker, ~~(b)~~ being ~~linked to~~associated with non-tissue internal reference marker positional information, and ~~(c)~~ being at least 2-dimensional;

associating a separate transformation from a tracking space to an image space with each image in the dataset;

calculating for each image in the dataset a dataset vector using a position of an external reference marker and a position of the non-tissue internal reference marker; and

outputting data values associated with a display of an image from the plurality of images.

2. (Canceled)

3. (Currently amended) The method of claim 1, ~~where~~ wherein each image ~~(a)~~ depicts the non-tissue internal reference marker, and ~~(b)~~ is linked to non-tissue internal reference marker positional information.

4. (Canceled)

5. (Currently amended) The method of claim 1, ~~where~~ wherein the images are 3-dimensional computed tomography (CT) images.

6. (Currently amended) The method of claim 1, ~~where~~ wherein the images are 3-dimensional magnetic resonance imaging (MRI) images.

7. (Currently amended) The method of claim 1, ~~where~~ wherein the images are 2-dimensional fluoroscopy images.

8. (Currently amended) The method of claim 2~~1~~, ~~further comprising~~wherein the creating the dataset includes:

      loading a gated dataset into a memory, the gated ~~data set~~ dataset including the plurality of
            images, at least one image from the plurality of ~~the~~ images ~~(a)~~ depicting the non-
            tissue internal reference marker, and ~~(b)~~being ~~linked to~~associated with a sample
            of a first periodic human characteristic signal.

9. (Currently amended) The method of claim 8, ~~where~~ wherein each image from the plurality of images ~~(a)~~depicts the non-tissue internal reference marker, and ~~(b)~~is ~~linked to~~associated with a sample of a first periodic human characteristic signal.

10. (Currently amended) The method of claim 8, further comprising:

      receiving a second periodic human characteristic signal; and
      comparing a sample of the second periodic human characteristic signal to the sample of
            the first periodic human characteristic signal[[;]].

11. (Currently amended) The method of claim 10, ~~where~~ wherein the first and second periodic human characteristic signals are electrocardiogram (ECG) signals.

12. (Currently amended) The method of claim 10, further comprising:

      ~~recognizing~~identifying a sample of the second periodic human characteristic signal that
            matches the sample of the first periodic human characteristic signal; and

receiving (a) data associated with a position of an external reference marker and (b) data associated with a position of the non-tissue internal reference marker.

13.-16. (Canceled)

17. (Currently amended) The method of ~~claim 13~~claim 1, further comprising:

receiving image space coordinates of the non-tissue internal reference marker in the image ~~linked to~~associated with the dataset vector.

18. (Currently amended) The method of claim 17, further comprising:

calculating a transformation from the separate transformations using the image space coordinates and the tracking space coordinates.

19. (Currently amended) The method of claim 18, further comprising:

associating the transformation with the image ~~linked to~~associated with the dataset vector.

20. (Canceled)

21. (Currently amended) The method of claim 19, further comprising:

receiving data associated with a current position of the external reference marker;

receiving data associated with a current position of the non-tissue internal reference marker;

calculating a current vector using the data associated with the current ~~positions~~position of the external reference marker and the data associated with the current position of the non-tissue internal reference marker;

identifying a match dataset vector (MDV), the MDV being the dataset vector most similar to the current vector, the MDV being ~~linked to~~associated with an image from the dataset;

receiving a current position of an instrument reference marker coupled to an instrument;

applying the transformation associated with the image ~~linked to~~associated with the MDV
to the current position of the instrument reference marker, thus transforming the
current position of the instrument reference marker into image space; and

superimposing a representation of the instrument on the image ~~linked to~~associated with
the MDV.

22. (Currently amended) The method of ~~claim 15~~claim 1, further comprising:

receiving data associated with a current position of the external reference marker;

receiving data associated with a current position of the non-tissue internal reference
marker;

calculating a current vector using the data associated with the current ~~positions~~position of
the external reference marker and the data associated with the current position of
the non-tissue internal reference marker;

identifying a match dataset vector (MDV), the MDV being the dataset vector most
similar to the current vector, the MDV being ~~linked to~~associated with an image
from the dataset;

receiving a current position of an instrument reference marker coupled to an instrument;

applying the transformation associated with the image ~~linked to~~associated with the MDV
to the current position of the instrument reference marker, thus transforming the
current position of the instrument reference marker into image space; and

superimposing a representation of the instrument on the image ~~linked to~~associated with
the MDV, before outputting data values associated with the display.

23. (Canceled)

24. (Currently amended) A method comprising:

receiving a position of an instrument reference marker coupled to an instrument;

transforming the position into image space using data associated with a position of a non-
tissue internal reference marker implanted in a patient; and

superimposing a representation of the instrument on an image in which the non-tissue
internal reference marker appears, the image being selected based on a look-up
table having data associated with a plurality of images.

25. (Currently amended) The method of claim 24, ~~where~~ wherein the image was taken using
fluoroscopy.

26. (Currently amended) The method of claim 24, ~~where~~ wherein the image was taken using
computed tomography (CT).

27. (Currently amended) The method of claim 24, ~~where~~ wherein the image was taken using
magnetic resonance imaging (MRI).

28. (Canceled)

29. (Currently amended) The method of ~~claim 28~~claim 24, ~~further comprising~~wherein the
transforming the position includes:
calculating ~~the~~ a transformation using image space coordinates and the tracking space
coordinates of the internal reference marker in the image.

30. (Currently amended) The method of claim 29, further comprising:
~~linking~~ associating the transformation ~~to~~ with the image.

31. (Currently amended) The method of claim 30, further comprising:
loading the transformation into a memory.

32. (Currently amended) The method of claim 24, further comprising:
before the superimposing, receiving an image signal that includes the image.

33. (Currently amended) The method of claim 32, further comprising:

   receiving <u>data associated with </u>a position of the non-tissue internal reference marker in the
   image.

34. (Currently amended) The method of claim 33, further comprising:

   calculating a vector using the position<u> of the non-tissue internal reference marker and an
   external reference marker</u>.

35. (Currently amended) The method of claim 34, further comprising:

   ~~linking~~ <u>associating </u>the vector with the image.

36.-38. (Canceled)

39. (Currently amended) A method comprising:

   receiving an image signal that includes <u>a plurality of </u>images, each image <u>from the
   plurality of images </u>depicting a non-tissue internal reference marker<u>, the plurality
   of images associated with a cyclical movement of a body part</u>;

   receiving <u>data associated with </u>a position of the non-tissue internal reference marker in
   one of the images (image I1);

   calculating a vector using the position<u> of the non-tissue internal reference marker and an
   external reference marker</u>;

   ~~linking~~<u>associating </u>the vector with ~~an ~~<u>the </u>image I1;

   ~~linking~~<u>associating </u>a transformation from tracking space to image space with <u>the </u>image
   I1;

   receiving a current position of an instrument reference marker coupled to an instrument;

   applying the transformation to the current position of the instrument reference marker;
   and

   superimposing a representation of the instrument on <u>the </u>image I1.

40. (Canceled)

41.   (New)   A processor-readable medium storing code representing instructions to cause a processor to perform a process, the code comprising code to:

create a dataset that includes a plurality of images associated with a cyclical movement of a body part, at least one image from the plurality of images depicting a non-tissue internal reference marker, being associated with non-tissue internal reference marker positional information, and being at least 2-dimensional;

associate a separate transformation from a tracking space to an image space with each image in the dataset;

calculate for each image in the dataset a dataset vector using a position of an external reference marker and a position of the non-tissue internal reference marker; and

output data values associated with a display of an image from the plurality of images.

42. (New) The processor-readable medium of claim 41, wherein the code to create the dataset includes code to:

load a gated dataset into a memory, the gated dataset including the plurality of images, at least one image from the plurality of images depicting the non-tissue internal reference marker, and being associated with a sample of a first periodic human characteristic signal.

43. (New) The processor-readable medium of claim 42, further comprising code to:

receive a second periodic human characteristic signal; and

compare a sample of the second periodic human characteristic signal to the sample of the first periodic human characteristic signal.

44. (New) The processor-readable medium of claim 42, further comprising code to:

identify a sample of the second periodic human characteristic signal that matches the sample of the first periodic human characteristic signal; and

receive data associated with a position of an external reference marker and data associated with a position of the non-tissue internal reference marker.

45. (New) The processor-readable medium of claim 41, further comprising code to:

    receive data associated with a current position of the external reference marker;

    receive data associated with a current position of the non-tissue internal reference marker;

    calculate a current vector using the data associated with the current position of the external reference marker and the data associated with the current position of the non-tissue internal reference marker;

    identify a match dataset vector (MDV), the MDV being the dataset vector most similar to the current vector, the MDV being associated with an image from the dataset;

    receive a current position of an instrument reference marker coupled to an instrument;

    apply the transformation associated with the image associated with the MDV to the current position of the instrument reference marker, thus transforming the current position of the instrument reference marker into image space; and

    superimposing a representation of the instrument on the image associated with the MDV.

46. (New) The processor-readable medium of claim 41, further comprising code to:

    receive data associated with a current position of the external reference marker;

    receive data associated with a current position of the non-tissue internal reference marker;

    calculate a current vector using the data associated with the current ~~positions~~position of the external reference marker and the data associated with the current position of the non-tissue internal reference marker;

    identify a match dataset vector (MDV), the MDV being the dataset vector most similar to the current vector, the MDV being ~~linked to~~associated with an image from the dataset;

    receive a current position of an instrument reference marker coupled to an instrument;

    apply the transformation associated with the image ~~linked to~~associated with the MDV to the current position of the instrument reference marker, thus transforming the current position of the instrument reference marker into image space; and

    superimpose a representation of the instrument on the image ~~linked to~~associated with the MDV, before outputting data values associated with the display.

47. (New) A processor-readable medium storing code representing instructions to cause a
         processor to perform a process, the code comprising code to:

    receive data associated with a position of an instrument reference marker coupled to an
         instrument;

    transform the data associated with the position into image space using data associated
         with a position of a non-tissue internal reference marker implanted in a patient;
         and

    superimposing a representation of the instrument on an image in which the non-tissue
         internal reference marker appears, the image being selected based on a look-up
         table having data associated with a plurality of images.

48. (New) A processor-readable medium storing code representing instructions to cause a
processor to perform a process, the code comprising code to:

    receive an image signal that includes a plurality of images, each image from the plurality
         of images depicting a non-tissue internal reference marker, the plurality of images
         associated with a cyclical movement of a body part;

    receive data associated with a position of the non-tissue internal reference marker in one
         of the images (image I1);

    calculate a vector using the position of the non-tissue internal reference marker;

    associate the vector with the image I1;

    associate a transformation from tracking space to image space with the image I1;

    receive a current position of an instrument reference marker coupled to an instrument;

    apply the transformation to the current position of the instrument reference marker; and

superimpose a representation of the instrument on the image I1.